

# AHMAD OMAR AHSAN

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## EDUCATION

**Bachelor of Science | Computer Science and Engineering**  
Islamic University of Technology, Gazipur, Bangladesh

Jan. 2017 – March 2021

## WORK EXPERIENCE

### AI Engineer

Feb 2021 – June 2022

Intelligent Machines

Dhaka, Bangladesh

- Trained and deployed a speech recognition model using TensorFlow for key-word classification. This model was developed to classify keywords spoken in different Bengali dialects in project Shobdo.
- Trained and deployed a text detection and text recognition model using PyTorch for text classification and localization. This model was developed to extract information from hand written receipts from local markets as part of project Fordo.
- Created and maintained registry in order to document existing AI projects for auditing using Saidot.

### AI Intern

Nov 2019 – Jan 2021

Intelligent Machines

Dhaka, Bangladesh

- Trained and deployed an object detection model to detect point of sales material in the image. The model enabled bKash to check how many point of sales material were deployed in the market.
- Created scripts to optimize data generation, training and testing for deep learning models.

## RESEARCH EXPERIENCE

### Research fellow

Jun 2022 - Dec 2022

Hyperbolic Deep Learning for Computer Vision | Fatima Fellowship

- My research project focuses on image classification using hyperbolic graph neural network. In this project the features are being extracted in the non-Euclidean domain which are used to perform image classification. The research project is being conducted under the supervision of Wei Peng.

### Research contributor

Nov 2020 - June 2021

Sound Generation Group | Sound of AI

- In this project I worked in the sound generation group. In this group I trained on WaveNet and focused on creating custom models by adding modules on top of WaveNet. Our objective was to create a guitar note synthesizer using an encoder and a decoder.

## PUBLICATIONS

**Neural Audio Synthesis of Guitar Sounds with Timbral Descriptors**  
The sound of AI community [Paper][Code]

AIMC 2022.

**Attention-Free Keyword Spotting**  
MM Morshed, AO Ahsan. [Paper][Code]

PML4DC 2022 ICLR workshop.

**Learning Audio Representations with MLPs**  
MM Morshed, AO Ahsan, H Mahmud, M Hasan. [Paper] [Code]

Under review

## ACHIEVEMENTS

### Hear Challenge 2021, NeurIPS 2021

Oct 2021

HEAR evaluates audio representations using a benchmark suite across a variety of audio domains.

- 1st place: Speech Commands Full, Speech Commands 5H, Mridingham Tonic
- 3rd place: Mridingham Stroke, Beehive States

## PROJECTS

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### **Keyword Transformer**

May 2021

An unofficial TensorFlow implementation of keyword transformer

### **Vision Transformer**

October 2021

An unofficial TensorFlow implementation of vision transformer

### **ResNet**

October 2021

PyTorch implementation of ResNet-50,101,150

### **EfficientNet**

October 2021

PyTorch implementation of EfficientNet model from B0-B6

## STANDARDIZED EXAMINATION SCORES

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- **GRE: 313** 161 Quant, 152 Verbal, 4.5 AWA
- **TOEFL: 110** Reading 26, Writing 28, Listening 29, Speaking 27

## REFERENCES

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### **Wei Peng**

Postdoctoral Researcher  
Computational Neuroimage Science Laboratory  
Stanford University  
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### **Dr. Hasan Mahmud**

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